AL.1.1670c2

BIODIVERSITY CONNECTOR

An Information Bulletin of the Alberta Natural Heritage Information Centre:
A Joint Project of Alberta Natural Resources Services and Canadian Heritage

ISSUE 3
WINTER 1995

FOUND AGAIN!!!

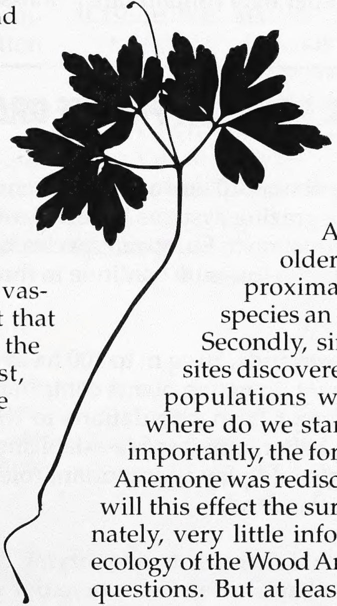
by Darrell Smith

The Wood Anemone (*Anemone quinquefolia*) has kept a low profile in Alberta since it was first discovered in 1953 by Keith Horton and Frank Petro, Canadian Forest Service staff, while surveying the Atlas Berth 18 miles north of Nordegg. Although it was also found on a site near the town in 1961, its existence was submerged in the herbarium collection of the University of Alberta. However, on July 31, 1995, the Wood Anemone was found once again on, or near, the initial site northeast of Nordegg. How then did the rediscovery of this rare plant happen?

Well, it all started at the Alberta Natural Heritage Information Center. During the winter of 1994/95, Patsy Cotterill was hired by the Alberta Land and Forest Service to compile a tracking list for the Rocky/Clearwater Forest. Patsy came up with a list of 63 vascular plants in the Rocky/Clearwater Forest that were known from relatively few locations in the province. However, one species on the list, *Anemone quinquefolia*, demanded some follow-up. Except for the two collections near Nordegg, no other records from Alberta existed for the species, and since both collections were historical, they needed to be reconfirmed.

The search was on! Joyce Gould and Ksenija Vujnovic of the ANHIC agreed to spend some time assisting in a field search. After reviewing old maps and air photos, we planned a search based on the vague geographic locations supplied on the herbarium specimens. In reality, we knew we were looking for a needle in a haystack. Luckily, on the last day of a 3-day search, Joyce spotted about a thousand of the elusive plants in an open pine stand along a seismic trail.

The search, although time-consuming, was fun and rewarding. However, if it was not for the emphasis of the Alberta Natural Heritage Information Center on verifying older records of uncommon plants, the Wood Anemone would still be overlooked as nothing would have earmarked this species for concern by forest land managers. Now that its geographic location is precisely known and entered into a geographic information system, and the site is on a tracking list for future monitoring, the Wood Anemone will no longer be lost among the thousands of more common specimens in a herbarium.



The rediscovery of this plant in Alberta has now raised many questions and few answers. Given that the Wood Anemone was found in an older Lodgepole pine forest (approximately 145 years old), is this species an old-growth forest indicator? Secondly, since there were at least two sites discovered in the past, are there other populations waiting to be found? If so, where do we start to look? Lastly, but most importantly, the forest stand in which the Wood Anemone was rediscovered may be logged. How will this effect the survival of the plant? Unfortunately, very little information is available on the ecology of the Wood Anemone to help answer these questions. But at least we have a starting point, thanks in part to the Alberta Natural Heritage Information Centre.

[ED NOTE:
***Darrell Smith** was a range specialist at Rocky Mountain House when this discovery was made. Darrell recently moved to Invermere, B.C. to work with the B.C. Ministry of Forests. We wish Darrell the best of luck.*]

GIS COMES TO PARKS

Parks Management Support Division acquired a Sun SPARC station 20 workstation and ARC/Info Geographic Information System (GIS) software in October. The workstation will serve the broad needs of Parks and the specific needs of the ANHIC. We also purchased a CalComp Colour TechJet Plotter for high quality graphic output as well as ARCview software, the presentation software for ARC/Info format coverages.

A GIS is a powerful tool that enables analysis and modelling of complex geographical relationships. There are two data components in a GIS. Spatial data describes where features are located. Attribute data describes the characteristics of features. It is the ability to link the spatial data with the attribute data that makes a GIS a valuable decision assistance tool.

There are three broad application classes: inventory, analysis and management. The inventory application is generally the first step in creating a GIS. This involves making an inventory of the features under study and storing them as layers or themes of data. For example, one layer may contain protected areas and another may contain rare elements. With this information, we can answer the "What is the feature at this location?" type of questions.

The analysis applications involve complex queries using two or more data layers. These queries are often conditional, for example, a display of all occurrences of a feature within the Montane natural subregion and outside of a protected area.

In the last application, management, the emphasis is on manipulation, analysis and modelling of data to address real world problems. For example, the creation of buffer zones around a proposed development to assess the impact of the development on rare elements

We are currently acquiring data and building coverages in the GIS. There is a large amount of information already available from a number of sources. Whenever possible, we have acquired existing coverages and are formatting them for use with our system. These coverages include basic features such as roads, rivers and lakes, as well as more complex coverages such as ecodistricts. We are also concentrating on inputting Environmentally Significant Areas (ESA's). We expect to produce our first rare element coverages for vascular plants and mosses from ANHIC data later this spring.

IN QUEST FOR REMNANT PRAIRIE GRASSLANDS: CAN YOU HELP?

Today, less than 5% or about 310 km^2 of the Parkland in Alberta remains in a relatively pristine condition. Crop and some grazing systems have almost completely replaced native plant species. Urbanization, pasture renovation to European species, domestic stock overgrazing, and non-native plant as well as tree and shrub invasion continue to threaten remnant populations of native Parkland grassland plants.

Remnant Parkland grasslands, 50 sq m to 100 ha in size, with native plant populations are too valuable to be lost. Not only do native plants contribute to species and habitat diversity, but also they are genetically different from populations to the south in the Grassland zone. As these populations should have better success of re-establishment than populations which are not from the immediate areas, they could play an important role in ecological restoration or reclamation of conservation areas in the Parkland.

I am a graduate student interested in quantifying the invasion of non-native plants into these remnant grasslands and what is left in terms of native plant diversity. While I have located some sites along the North Saskatchewan River Valley, and on private land in the County of Lamont as far east as the Viking area, I need additional sites for my research. Can you help me to locate other sites? Any specific site locations or general suggestions I receive by early spring (April, 1996) will be greatly appreciated.

Send information to: ***Ksenija Vujnovic*** *- M.Sc. Candidate, Department of Biological Sciences - CW 312, University of Alberta, Edmonton, T6G 2E9. Telephone (403) 492-2038 or (403) 434-6016.*

LICHEN AND BRYOPHYTE PROJECTS

RARE LICHENS IN ALBERTA

The current checklist of the lichens of Alberta includes 323 non-crustose lichens. Because the taxonomy of many North American crustose taxa has not been critically evaluated, current efforts to clarify the status of rare lichens of Alberta has focused on foliose and fruticose lichen groups. Fruticose lichens have terect to pendant lobes, whereas foliose lichens have a thallus with plane lobes that are not attached to their substrate.

During the past year, Bernard Goffinet, of the University of Alberta, has completed a review and developed a preliminary tracking list of Alberta lichens for the Alberta on behalf of the ANHIC. To do this, Bernard reviewed the herbarium specimens at the university and the Alberta Provincial Museum and undertook a critical examination of all taxa recorded in 5 or fewer localities. One result of this project is that Bernard has found that several additional species may occur in Alberta. While some of these findings are not unexpected (*e.g. Arctoparmelia* species), others represent significant range extensions (*e.g. Phaeophyscia cernohowskyi, Bryoria nitidula*). This work will continue in the hope of completing the identification of rare lichen elements of Alberta.

RARE MOSSES IN ALBERTA

Mosses, like vascular plants, display distinct species distributions and occur with variable frequency. In Alberta, about 150 mosses are considered rare or infrequent. A large majority of these are restricted to the Rocky Mountains within the province.

Dale Vitt, Rene Belland, and Ross Priddle, researchers at the University of Alberta, have been studying the causes of rarity among the mosses of Alberta for the past year. Using herbarium specimens, supplemented by field work, they are documenting uncommon mosses in terms of their ecologies and occurrence in the province.

Preliminary analysis shows the rare mosses to be very narrowly distributed within the province. They display three areas of high concentration, all within the mountain national parks: Jasper, Banff, Waterton. Of these areas, the mosses show the highest diversity (24 species) in Jasper, where they are narrowly concentrated in the Mt Edith Cavell area. Study of the ecologies of these Jasper species shows them to be restricted to rock or soils derived from siliceous rock, especially Gog quartzite. This observation led to the speculation that many of the rare species should be found in other areas Jasper dominated by quartzites, and that new species should be found.

With this hypothesis in mind, Rene and Ross spent 10 days of field work in Jasper National Park investigating sites dominated by siliceous rock. These sites included Mt Edith Cavell, Pyramid Mtn, Marmot Basin, Maligne Lake area, as well as sites on the Banff-Jasper highway near Endless Chain Ridge. The results of this work yielded support for their hypothesis; several new stations for rare mosses were discovered and at least three new moss species were added to the flora of Alberta. Field work will continue in the coming years by expanding into remote areas which will undoubtedly refine the rare species list and add to our knowledge of moss ecology and distribution.

For more information contact: ***Rene J. Belland**, Devonian Botanic Garden, tel. (403) 987-3054, e:mail: rbelland@gpu.srv.ualberta.ca*

HOW TO CONTACT US?

If you would like to:

- be placed on our mailing list for the *Biodiversity Connector,*
- obtain a copy of our tracking lists,
- contribute to the development of *Biodiversity Connector* or,
- simply want more information;

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NATURAL HERITAGE INFORMATION CENTRE
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